

advanced period. The nucleus therefore is not an organ necessarily dependent (at least in its earlier stages) on the membranes which surround it, nor developed subsequently to them, as would seem to be implied in the account given of M. Brongniart's opinion, translated from the 'Comptes Rendus' (March 1844), and published in a late Number of the 'Annals and Magazine of Natural History.'

LVI.—Notes on the Synonymy of the Genus *Apion*, with Descriptions of Six new Species, &c. By JOHN WALTON, Esq., F.L.S.

[Continued from p. 342.]

57. *A. difforme*, Germ., Curt., Steph., Schönh.
— *compressicorne*, Dej. Cat.

THE anomalous structure of the antennæ and the parts of the legs, which eminently distinguishes the male of this species, is entirely sexual. The female differs in having the rostrum slender and longer; the antennæ simple, inserted behind the middle of the rostrum, entirely black; the legs slender; the basal joint of the anterior tarsi short and not produced at the apex, the posterior tibiæ and tarsi much less dilated at their apices; all the trochanters, the tibiæ and tarsi of a deep black; the epigastrium simple. The male was originally described by Germar from a specimen sent to him by the late Mr. Haworth; subsequently Mr. Curtis figured and also described the male; I succeeded in capturing a great number of both sexes in October 1837, which gave me an opportunity to identify distinctly the female. The female has frequently been mistaken for *Ap. Trifolii* of Linnæus (*Ap. æstivum* of Germar), but it is instantly distinguished from that species by having, independently of other characters, the anterior coxæ and trochanters always densely black.

This curious species was formerly considered to be very rare, yet of late years it has been found in abundance in many localities in the south of England, but not in the north to my knowledge; I found a great number of both sexes near Mickleham in Surrey the 1st of October 1837, and again at Hastings in September on the *Polygonum Hydropiper* abundantly. "Common near Brighton, Arundel, Birch Wood, and other places in the autumn," Mr. S. Stevens.

58. *A. dissimile*, Germ., Schönh.

Black and shining. Head very broad, the frons posteriorly flat, rugose or rugose-punctate, between the eyes more or less deeply excavated, the excavation with one or more irregular curved ridge or ridges; eyes very prominent; rostrum moderately long,

curved, rather stout, dilated on each side at the insertion of the antennæ, and gibbous beneath. Antennæ medial, black, the basal joint fulvous, longest, considerably dilated at the apex, forming a pyriform club, the second oval, minute, three following exceedingly minute, sixth and seventh very long, eighth stout, long-obconic, the remainder forming an elongate club distinctly articulated, the twelfth being minute, conic. Thorax subglobose, dilated and rounded at the sides, above very convex, thickly and deeply punctured, the punctures confluent, with a deep dorsal channel. Elytra ovate, shining blue-black, very convex, punctate-striate, the interstices broad, flat and coriaceous. The mucro of the epigastrium elevated and dilated, armed on each side with an acute tooth. Legs fulvous, robust, with the four posterior coxæ, the lower half of all the tibiæ and the tarsi black; the anterior tarsi have the basal joint short and stout, armed at the apex within with an acute tooth, the second joint at the base within also armed with an acute tooth, which is parallel to the first; the four posterior tibiæ are distinctly stouter than the anterior pair, bent, and each gradually thickened from the base to the apex; the two first joints of all the tarsi dilated; the basal joint of the posterior pair parallelogramical; the three first joints of all the tarsi, especially the posterior pair, concavo-convex, and clothed beneath with a pulvillus. ♂. (Length $1\frac{1}{4}$ line.)

The female differs in having the head generally narrower, striated between the eyes, the frons posteriorly closely punctulated; the rostrum longer, slender and filiform; the antennæ placed behind the middle of the rostrum, the basal joint black or piceous, slender, a little dilated at the apex, the second long-ovate, the six following nearly of equal length, long-obconic; the legs comparatively slender; the four posterior tibiæ as long as the anterior, of equal thickness and nearly straight; the two first joints of all the tarsi slightly dilated; the anterior tarsi and the mucro of the epigastrium simple.

This new and extraordinary species offers another example of anomalous form peculiar to the male in the joints of the antennæ and in the construction of the legs. I first received a single example with the collection of the late Mr. Millard of Bristol, which I sent to Germar as a new species, and he returned it labelled "*dissimile* ♀." Specimens of both sexes were afterwards found near Arundel in August, and rather plentifully amongst grass in a field adjacent to Birch Wood in September, by Mr. S. Stevens and myself.

59. *A. filirostre*, Kirb., Steph.

— *morio*, Germ., Schönh.

The female of this species has sometimes a broad testaceous ring at the apex of the anterior femora.

Hitherto this insect has occurred but very sparingly, and may be regarded as somewhat rare; Mr. S. Stevens found it in the autumn amongst grass in Arundel Park; also at Charlton, Dorking, and Birch Wood, but rarely; I cannot recollect having taken it more than once, and then but a few specimens, at Mickleham in Surrey, the beginning of October: it appears to be confined to chalky and sandy districts.

60. *A. ebeninum* (Gyll. in Litt.), Kirb., Gyll., Germ., Steph., Schönh.

— *Kunzei*, Schönh.

I forwarded to Schönherr four specimens of this insect, and he reported of them as follows:—“*Ap. ebeninum*, Kirby (i. p. 288. n. 89.) non idem Ghl.—*Kunzei* Schh. v. p. 419. n. 128. idem species.” “Patria Lipsiæ A. Dom. Kunze.” From this opinion I was induced to think that we had two closely allied species, namely *Ap. ebeninum* of Gyllenhal and *Ap. Kunzei* of Schönherr, and that I had mistaken *Ap. ebeninum* of Kirby, or that the latter author had described a Swedish species which was unknown as British, and had erroneously placed two indigenous specimens in his collection as identical therewith. It appears from a catalogue of Swedish insects, dated the 6th of September 1805, in the handwriting of Major Gyllenhal, now in the possession of the Entomological Society, that Mr. Kirby originally received from him an insect with the manuscript name of *Ap. ebeninum*, which he described under that name, and refers to “Mus. Dom. Gyllenhal,” giving the habitat in “Suecia. Anglia,” and records the capture of British examples near Great Blakenham in the middle of July 1806, after which he adds an observation, “The male has the rostrum shorter and more robust.” The Swedish typical specimen in Mr. Kirby’s collection, indicated by having number 34 fixed to the pin, is unfortunately mutilated; the head and thorax are wanting; it is therefore useless for the purposes of comparison and elucidation, but it corroborates the evidence that Mr. Kirby’s description of *Ap. ebeninum* was drawn from this insect; there are two Kirbian specimens with the above-named type, one of which has a male symbol fixed to the pin, which is doubtless the specimen characterized above. Gyllenhal subsequently described this species before he had seen Kirby’s description; but their descriptions of the sculpture do not agree: the part of the head between the eyes is described by Kirby as not being very conspicuously *striated*, with some of the striæ punctulated; by Gyllenhal, the frons between the eyes as being very minutely *punctured*: the thorax is described by the former as *distinctly punctured* with a deep *furrow* before the scutellum, which in some is very much broader and deeper; by the latter author, as sparingly

and very finely punctured, with a small round *fovea* before the scutellum. I forwarded to Germar seven examples of *Ap. ebeninum* of Kirby, and at the same time I solicited him to send me specimens of *Ap. Kunzei*, as he had recorded in his 'Monograph' that he possessed examples of *Ap. ebeninum* from Kunze of Leipsic. I received from him two insects named "*Ap. ebeninum* of Germar" with the following note: "*Ap. Kunzei*, Schönh., is unknown to me;" the specimens which I forwarded to Germar were taken promiscuously from the same series as those I had previously sent to Schönherr, and were collected in the same locality; Germar, in prefacing his observations upon the British species of *Curculionides*, presented to him by me for examination, observes, that "all the species in which we concur are omitted," and *Ap. ebeninum* is one of that number. I have now in my possession two insects which were sent to M. Schönherr by Mr. Waterhouse, and returned in October 1837, named *Ap. ebeninum*.

I have been induced to re-examine the insects in Mr. Kirby's collection with the name of *Ap. ebeninum*, to examine carefully the specimens of Mr. Waterhouse, and the two insects from Dr. Germar, together with a long series of seventy specimens of my own, found partly in the same locality as those I sent to M. Schönherr; and after a tedious and minute examination of so many insects, I feel perfectly satisfied they all belong to the same species.

This remarkable insect has very little affinity to any other species, except its being of the same genus, and may be distinguished at first sight by its singular form and peculiar sculpture; nevertheless the sculpture, particularly on the thorax, will be found, when critically examined, to vary in many specimens, yet they are so intimately linked together in a long series, that it is impossible to regard them otherwise than as varieties. The majority have the head with three impunctate striæ between the eyes, the central stria frequently deeply cut, sometimes faintly marked, occasionally abbreviated, rarely entirely absent, with one or two rows of minute punctures on each side, which are occasionally confluent, the vertex smooth; the greater part have the thorax very minutely punctured, the punctures more or less scattered, sometimes distinct, at other times obsolete, uniformly with a *fovea* near the base before the scutellum, which is invariably intersected either by a dorsal furrow or an impressed line, always commencing at the base, and more or less abbreviated in front, rarely continued to the apex; some have the furrows broad and deep, extending nearly to the apex, almost obliterating the *foveæ*; these varieties agree with the descriptions of *Ap. ebeninum* by Kirby, and of *Ap. Kunzei* of Schönherr: other specimens have a

faintly impressed line terminating just before the fovea, with the latter very distinct; these agree typically with *Ap. ebeninum* of Gyllenhal; the elytra are black and shining, the furrows very deep, the interstices narrow and convex, finely coriaceous or nearly smooth, with a tendency in some individuals to become rather broader and less convex.

I have no doubt this insect inhabits *Lotus major*, having many times taken it plentifully from that plant in June and July, in several places in the north and south of England.

61. *A. Viciae*, Payk., Kirb., Gyll., Germ., Steph., Schönh.
— *Griesbachii*, Steph.

Gyllenhal furnished Paykull and Kirby with specimens of this very distinct insect; the characters which distinguish the sexes are analogous to those of *Ap. Ervi*. *Ap. Griesbachii*, described by Stephens in his 'Illustrations,' appears to have been sunk in his 'Manual,' on my authority, but with a note of interrogation; specimens were submitted by Mr. Waterhouse to the inspection of Schönherr, who remarked that they were scarcely sufficiently distinct from *Ap. Viciae*; I think there cannot be any doubt of its being a variety of that species.

I found this elegant insect very common in Yorkshire on the *Vicia Cracca*; but it appears to be rather local in the south; I once found it extremely abundant on the 19th of June at Birch Wood, on the same plant, but never upon any other.

62. *A. Ononis*, Kirb., Steph.
— *mecops*, Schönh.

This species has a considerable affinity in form and sculpture to *Ap. pavidum*, but it differs in being more thickly clothed with hair, and in having the head distinctly longer; the vertex punctulated; the rostrum thickly covered with hairs to the apex; the antennæ inserted before the middle of the rostrum, the basal joints black or piceous, the clava ovate; the thorax subcylindrical; and the elytra black (never blue, obscure green or greenish black). The female differs in having the rostrum sparingly covered with hairs to the tip, and the antennæ inserted nearer the middle of the rostrum.

Specimens of this insect were sent by Mr. Waterhouse and myself to M. Schönherr, which were named *Ap. mecops* by that author.

This species is very abundant in the south of England, and is found upon the rest-harrow (*Ononis arvensis*) from June to October. It is extremely local in Yorkshire, but very plentiful when found.

63. *A. pavidum* ♂, Germ., Schönh.
 — *Ononis*, Germ. ? non Kirb.
 — *cinerascens*, Germ.*
 — *plumbeum*, Schönh.

Black, rather broad, thickly clothed with cinereous hairs. Head short, subquadrate, the vertex, adjoining the thorax, smooth and shining, the frons flat, posteriorly punctulated, anteriorly distinctly striated, the central striæ extending to the vertex; rostrum short, about twice the length of the head, porrect, a little bent, filiform, the apex smooth and shining; eyes ciliated beneath. Antennæ inserted a little behind the middle of the rostrum, the first and second joint and sometimes the third dull rufous, the clava oblong, acuminate, black and pilose. Thorax as broad as long, subglobose, laterally dilated and rounded, convex above, closely and deeply punctured with a distinct dorsal channel more or less abbreviated in front. Elytra obovate, very convex, profoundly punctato-sulcate, the interstices rather broad and flat, transversely rugulose, blue, obscure green or greenish black. Legs very long, black. ♂. (Length $1\frac{1}{3}$ line.)

Mr. Waterhouse forwarded a British insect to M. Schönherr, which was returned with the name of *Ap. pavidum* of Germar. I possess a foreign specimen from M. Schönherr which is labelled "*Ap. pavidum*, G. e Saxon. Schupp," and I have another specimen of *Ap. pavidum* from Dr. Germar. Mr. Curtis has likewise a foreign example of *Ap. pavidum* from M. Sturm. It is very satisfactory to find four eminent entomologists all concurring in one opinion as to the identity of this species; but it is a curious fact, that the four insects in question are decidedly all males. M. Chevrolat not having a duplicate specimen of *Ap. plumbeum* of Schönherr, very liberally sent to me the type of that species for my inspection; this I find is also a male of *Ap. pavidum* of Germar. Dr. Germar has sent me four insects with the name of *Ap. Ononis*, which I have carefully examined: the male agrees in every character with the male of *Ap. pavidum*; the female differs in having the rostrum longer, before the antennæ slightly attenuated, glabrous and shining, the antennæ placed behind the middle of the rostrum; these are only sexual dissimilarities, and are common to many other species; in other characters the males and females agree. The four insects under consideration have the sculpture very similar, and approximate rather closely in form to *Ap. Ononis* of Kirby, but they are sufficiently distinct from that species. See notes on *Ap. Ononis*.

The only British example of this species that I have seen is in

* Germ. Mag. iii, App. p. 38.

the collection of Mr. Waterhouse; he has no distinct recollection where he found it.

64. *A. Waltoni*, Steph., Curt. MSS., Schönh. in Litt.
— *Curtisii*, Schönh.

This insect approaches very closely to the preceding, but differs chiefly in having the vertex of the head adjacent to the thorax thickly *punctulated*, the punctures frequently confluent, the frons minutely punctured, the punctures arranged in rows, sometimes confluent, rarely rugulose-punctate, and in having one fine impunctate stria in the centre, occasionally indistinct; the basal joints of the antennæ black or inclining to piceous, the clava *ovate*; the thorax subcylindrical, slightly rounded at the sides and rather convex above, with a short dorsal line or a large puncture at the base; the legs *distinctly shorter*.

Professor C. H. Boheman, in the celebrated work of Schönherr, has described a species under the name of *Ap. Curtisii* of Stephens, taken from specimens forwarded by Mr. Waterhouse, and returned to him; these have been placed in my hands for examination, and it is very much to be regretted that they are not the true *Ap. Curtisii* of Kirby's MSS., but are undoubtedly the species described by Mr. Stephens under the name of *Ap. Waltoni*. I sent specimens of this insect to M. Schönherr named *Ap. pavidum* of Germar, citing *Ap. Curtisii* of Stephens nec Kirby as a synonym, which elicited the following observation: "*Ap. Waltoni*, Schh., nova spec. forte—*Apioni plumbeo* proximum—non *pavidum*, Germ. (vix *Curtisii*, v. p. 430. n. 163, mihi non ad manum.") I likewise sent specimens to Dr. Germar; his opinion of them is as follows: "*Ap. Waltoni*, Steph., a new species for my collection."

I found this insect rather plentifully on the chalky downs near Brighton in the autumn. Taken by Mr. S. Stevens near Brighton, Arundel, Bury-hill and Dorking, from June to October; it appears to be confined to a chalky soil.

65. *A. vorax*, Herbst, Kirb., Gyll., Germ., Steph., Schönh.
Curc. villosulus ♀, Marsh.
— *fuscicornis* ♂, Marsh.
A. pavidum, Mus. Steph.

The male differs from the female in being more pubescent, and in having the rostrum shorter, filiform, and covered with hairs; the antennæ and their articulations longer and distinctly stouter, the four or five basal joints rufous; the mesostethium armed where it terminates between the posterior coxæ with an acute tooth; the anterior tibiæ longer, compressed internally and externally at the base, and in front and behind at the middle; and the basal joint of all the tarsi longer.

Kirby and Stephens appear to have described the female, and to have ascribed the remarkable subflexuose appearance in the form of the anterior tibiæ to that sex, but it is a character peculiar to the male. It is a very active insect and runs with great rapidity. Small varieties of the female occur which have a great resemblance to the same sex of *Ap. pavidum*.

Plentiful near Knaresborough in Yorkshire, in woods and hedges upon various plants, in June and July; it also occurs not uncommonly in the south, I believe generally in woods.

66. *A. Pisi*, Megerle, Fab., Germ., Schönh., Steph. Manual.
 — *punctifrons*, Kirb., Germ., Steph.
 — *æratum*, Steph.

Frequently taken in many localities in the north and south of England, and found abundantly in the chalky districts of Kent and Surrey upon *Trifolium procumbens* and *Hedysarum Onobrychis* in June.

67. *A. Æthiops*, Herbst, Germ., Gyll., Schönh.
 — *subsulcatum*, Marsh., Kirb., Germ., Steph.
 — *Marchicum*, Gyll. vol. iii.
 — *subcæruleum*, Steph.

The sculpture of this very distinct species is subject to variation. Kirby and Stephens describe the head *rugulose* between the eyes; the thorax *deeply punctured*, with a very *obsolete dorsal channel*; the elytra *subsulcate*: Gyllenhal describes the frons as *obsoletely striated*; the thorax closely but *obsoletely punctured*, with a small *obsolete fovea* before the scutellum; the elytra *deeply punctate-striate*.

Kirby has cited the following as varieties:—

Var. β. the elytra *sulcate* with the interstices *convex*.

Var. γ. the thorax without a fossulet or a line.

Var. δ. the head with three sulci between the eyes.

“*Var. β.* may be distinct, but it differs in nothing but the convexity of the interstices of the elytra.

“I took *δ.* upon the bean; it may be distinct, but it differs in scarcely any point except the furrows between the eyes.”

In my series of seventy specimens, the principal part have between the eyes three or four very distinct sulci; some of them are faintly or less deeply carved than in others, but with a lens of a quarter of an inch focus, all have them more or less distinct; the thorax rather closely and deeply punctured, the punctures varying in magnitude and depth, but always very distinct, with a striolet or a large puncture before the scutellum, sometimes obsolete or wanting; the elytra elegantly engraved, very deeply and distinctly punctate-sulcate, the sulci catenulate-punc-

tate, the interstices broad, flat and coriaceous : varieties occur with the interstices more or less convex and transversely rugulose.

Specimens of *Ap. subsulcatum* of Marsham and Kirby sent to Schönherr and Germar were determined by them to be *Ap. Æthiops* of Herbst. Gyllenhal and Schönherr's having adopted the latter name upon the authority of Germar, has induced me to follow them.

Occasionally found in plenty in many parts of England ; near Dover upon *Vicia Sepium* in June.

68. *A. livescerum* ♂, Schönh.

— *translaticium* ♀, Schönh.

— *Hedysari*, Walt. MSS.

Plumbeous black, glossy, sparingly clothed with fine cinereous hairs. Head subquadrate, the vertex adjoining the thorax smooth, the frons posteriorly slightly convex, closely punctured, between the eyes commonly flat, sometimes depressed, longitudinally rugose-punctate, with one to two impunctate striæ more or less distinct ; eyes prominent ; rostrum moderately stout, nearly as long as the head and thorax together, curved, a little attenuated in front, rather thickly punctulated throughout, black and slightly glossy. Antennæ medial, rather longer than the rostrum, totally black. Thorax very little longer than broad, subcylindrical, broader behind than before, the anterior margin elevated, laterally scarcely dilated, convex above, coarsely and thickly punctured, posteriorly with a deep dorsal channel more or less abbreviated in front, plumbeous black and shining. Scutellum triangular, black. Elytra long-obovate, the shoulders nearly rectangular, the humeral callus elevated, convex above, deeply punctate-sulcate, the interstices flat, transversely rugulose, sometimes coriaceous, greenish blue, rarely blue or blue-black. Legs moderately long, black. ♂. (Length $1\frac{1}{2}$ — $1\frac{2}{3}$ line.)

The female differs in having the head narrower ; the rostrum longer, slender, filiform and shining ; the antennæ inserted behind the middle of the rostrum.

Dr. Germar sent me six insects (♂ ♀) with the name of *Ap. translaticium* of Schönh., remarking that he had received this species from M. Schuppel under that name, and from M. Aubé for *Ap. livescerum* of Schönh. ; and that *Ap. Hedysari* of Walton likewise agreed with them. I received a typical specimen of *Ap. livescerum* of Schönh. from M. Chevrolat, who informed me that *Ap. translaticium* was synonymous. I have closely examined the above-named foreign specimens, and I am convinced they are identical with the British species *Ap. Hedysari*.

Found in abundance in the chalk counties on the common saintfoin (*Hedysarum Onobrychis*) from June to October.

69. *A. Gyllenhali*, Kirb. ♀, Gyll., Germ., Steph., Schönh.
 — *unicolor*, Kirb. ♂, Germ., Steph., Schönh.
 — *Æthiops*, Gyll. vol. iii.

This insect appears to be extremely rare in the south, and very local in the north of England. I once found it abundantly, in company with *Ap. Spencii*, in a valley just beyond the White Nab, on the sea-coast south of Scarborough in Yorkshire, upon *Vicia Cracca*, the beginning of August 1837, which gave me an opportunity of identifying the sexes of both species beyond all doubt, and the pleasure of supplying many cabinets with specimens, since which I have never met with it, nor have I heard of its capture in the south of England.

70. *A. Meliloti*, Kirb., Germ., Steph., Schönh.
 — *bifoveolatum*, Steph.

Few cabinets contained this species until I had the pleasure of supplying them. I met with it near Knaresborough in Yorkshire in profusion upon the melilot trefoil (*Trifolium officinale*) in September; it occurs very sparingly in the south; I have occasionally found a few specimens in Charlton sand-pits upon the same plant, and it is the only locality that I am acquainted with in the vicinity of London. Mr. S. Stevens has taken it at Bury-hill near Arundel in August, and also at Charlton in June.

I have a foreign specimen of *Ap. aciculare* from Germar, who informs me that it is found in Germany upon *Cistus Helianthemum*, but very rarely; it has been recorded as British, yet I have never seen an indigenous example.

LVII.—On the British Desmidiæ. By JOHN RALFS, Esq.,
 M.R.C.S., Penzance*.

[With a Plate.]

SCENEDESMUS, *Meyen* (ARTHRODESMUS, *Ehr.*).

Fronds composed of few (two to ten), cylindrical, fusiform or oblong cells, arranged in one or two rows.

The cells are always entire and mostly fusiform or oblong, although in some species the outer ones are lunulate. They are few in number, varying from two to ten, and are placed side by side in one or two rows and united by a hyaline mucus.

In this genus the specific characters depend on the number, position and form of the cells. It however seems probable that

* Read before the Botanical Society of Edinburgh, June 13, 1844.